FIRST REPORT.

WELLAND CANAL.

MAY, 1830.

FIRST GENERAL REPORT

FROM

Robert Randal, Esquire,

THE

COMMISSIONER APPOINTED "UNDER AND BY VIRTUE OF" AN ACT PASSED IN THE ELEVENTH YEAR OF HIS MAJESTY'S REIGN,

ENTITLED,

"An Act to grant a further loan to the Welland Canal Company and to regulate their further operations."

FEBRUARY 8th, 1831.

ORDERED BY THE HOUSE OF ASSEMBLY TO BE PRINTED.

YORK:
JAMES BAXTER, PRINTER.

1831.

1831
(13)

FIRST REPORT, &c.

To His Excellency Sir John Colborne, Knight, Commander of the most Honorable Military order of the Bath, Lieutenant Governor of the Province of Upper Canada, Major General commanding His Majesty's Forces therein, &c. &c. &c.

At at an early period after the passing of the act authorising and appointing me to examine the Welland Canal, and to report to your Excellency "all such facts and information" as I might "deem useful, in aid of forming a correct opinion" of that work; "its progress, condition and future usefulness," I proceeded to Port Dalhousie, and from thence along the whole line to the Dam at the Grand River; and personally inspected as far as the state of the weather would admit, the Harbor on Lake Ontario: the Deep Cut, the Locks, the Aqueduct, the Feeder, the Dam, and the excavation generally.

THE DEEP CUT.

As the 13th Section of the Statute requires a very minute and particular examination of the Deep Cut to be made, in order to ascertain as far as practicable, "the probability there is of the stability or instability of the banks," I have visited and inspected that section of the work from time to time, since the beginning of April, carefully enquiring into, and noting down, such facts and occurrences as I considered likely to prove useful.

Several slips in the left or West bank have taken place this spring; the surface area of one of them perhaps exceeding half an acre—but the soil thus deposited in the Canal, has partly filled up the vacant space below the new bottom level, and by widening the summit level, rather benefitted than injured the navigation. I was informed that at the place where the banks had chiefly given way, during the present year, the workmen on the Canal had first discovered the soft clay bottom, and on further digging arrived at a stratum of quicksand.

An opinion is very generally entertained, by persons residing near the Canal, that the margin will give way in other places along the line of deep cutting; and it is indeed probable that such will be the case; for the banks that remain unbroken, are apparently in the same unstable condition as were those places which have already fallen in; the quality of the soil is the same and they are equally steep—But I do not apprehend any very serious consequences from this state of the banks, for there are now eight, ten, and in some places, twelve feet of water and vacant space in the Canal, below its present base level, where the margin has not caved in; and unless the banks were to give way on both sides, the soil, (judging from the experience of the last eighteen months,) would not be likely to fill the canal any farther than to its base level, and scarcely, if at all, interrupt navigation.—The slips that have taken place since the Welland River level was abandoned, have occasioned very little additional excavation or trouble. I found a few laborers employed clearing out a bottom channel of twenty feet width for a short distance—The cutting was neither deep nor extensive.

The banks on the towing path side are steep, but have thus far stood the test of the seasons, except in a very few places—when the Canal is filled with water, there will be much less chance of the sides giving way in this section, than there is in its present state; and, looking at the subject in this its worst point of view, I can decidedly express my opinion that the anticipation of such an event ought not to be allowed to prevent or hinder the completion of the Canal, or be received as an argument against its utility as a permanent public work. Were the soil to cave in so as to stop the passage of vessels it could be cleared out and placed at a proper distance at no great expence—and without much loss of time, and that is the worst that can happen.

It is to be regretted however, that more precaution was not made use of by the principal

engineer employed on the Canal, before the sum of eighty five thousand pounds had been sunk in excavating this stupendous ravine. Had more pains been taken to ascertain by deep boring at short distances, the nature and quality of the sub-stratum on which the banks were intended to rest, and which was to form the bottom level of the canal, a vast saving would have been effected to the Colony, and the canal by this time probably open for ships from Erie to Ontario. I visited the Deep Cut so late as Tuesday last, and found it open and almost clear of every obstruction.

GRAND RIVER DAM.

The idea of obtaining an ample supply of water from the River Ouse for a ship canal to connect Lakes Erie and Ontario, is not a new one. It occurred to the Commissioners of Internal Navigation as far back as 1823, as appears by their valuable report made to Your Excellency's predecessor in the month of February in that year, and lately republished at Kingston under the direction of the gentleman who had been President of the Board. The same means of obtaining a supply for the Welland Canal was proposed to the Board of Directors in 1827, by Mr. Barrett, then Engineer, but was not then acted on.

The Dam thrown across the Grand River, is nine chains in length, and raises the waters about five feet above the former level. The Dam is said to have gradually settled down twelve to sixteen inches since last June. The soil is favorable, being a clay bottom. The base of the Dam is an hundred feet; and for a foundation, whole trees were cut down, drawn and laid lengthways into the stream with their branches on; gravel and stone were next thrown in; and the work finished with alternate layers of brush and gravel. It is well timbered throughout; and the timbers in the abutment at its south end are well framed, and the workmanship substantial. The north wing of the dam is in want of repairs; it should be filled in, to prevent the river breaking round, and raised with a breastwork of timber, brush and stone.

Two or three hundred cords of small stones and gravel, if thrown on the top, would mix with the brushwood, and greatly strengthen the dam.

South of the dam, an embankment has been raised; its height is nine feet; twelve feet at top, with a slope of two to one; its length is 22 chains. I consider the top unsafe in its present state, and would recommend that it be faced with timber, and raised three or four feet higher than the summit level of the river above the dam, at highwater mark.

South of this embankment is an artificial channel which is to be filled up. There are also two waste wears on the same side of the river, the apron of one of which is 180 feet, and of the other 200 feet. The waste wear farther down stands in need of repairs.

Persons residing at Dunnville, informed me that the river rises from two to three feet, that being the range between high and low water level above the dam. Last winter's ice did no material injury either to the dam or the embankment.

At this season of the year, the waters of the river flow over the dam, but it is believed that about one fourth of the stream is lost in the dry season—a great part of which waste water could be retained, were the dam tightened.

According to the best information I could procure, the space open in the dam at low water, last year, through which the stream passed, was two and a half rods wide and the average depth ten or twelve feet, with a current of five miles an hour. Thence may be inferred the immense extent and value of the water privileges on the canal in a dry season.

Below the dam the river forms one vast harbor four or five miles in length; six hundred feet average width, and of a mean depth of twelve or fifteen feet.

At the village of Dunnville, (so named in honor of the President of the Canal Board, who has greatly exerted himself to bring the undertaking to a successful termination,) the company have already rented water privileges to three saw mills and one grist mill. Arks loaded with flour, pork, and whiskey had arrived from Brantford on the 15th instant at the feeder, and were awaiting the opening of the navigation to cross the peninsula to Port Dalhousie.

The erection and maintenance of this great dam across the Ouse is unauthorised by any Legislative act of this Province. The lands of individuals situated on the banks of the river, for a distance of about ten miles, are overflowed without the consent of the owners, and without recompence having been afforded them, according to the award of a jury of the country; fish are prevented from ascending the river, and neither ark gap, lock nor apron has been constructed or maintained of a sufficient width and depth to admit boats, arks and rafts.

Application might have been made to the Legislature before or since the building of this dam for authority to maintain it during the pleasure of Parliament, and to regulate the mode of compensation to persons aggrieved, &c., but it has not been done. It will be for the Legisla-

ture to determine how far the circumstances in which the company were placed could be considered as an excuse for their violation of the laws which assure and protect the rights of persons and property in this Province. Had the dam been built at the mouth of the river, it would have tended to render the country more healthy: as it is, the lands below Dunnville will long continue to stand in the way of the comforts of the inhabitants. "Much of this level piece of water," observed Mr. Geddes, "is bordered by a "sedgy shore, where rotten vegetables are acted "upon by the fluctuations of the lake and the "beams of a hot sun; and from this decaying "mass rises a vapour that makes the lower part "of the Grand River valley unhealthy. Cov- "ering this amphibious description of shore with "a body of water that will remain permanently "upon it, will doubtless act with great effect in "improving the health of this sickly region of "country, and will be hailed with joy by those "living at the naval depot."

THE FEEDER OR BOAT CANAL.

From the Grand River dam to Broad Creek, a distance of five miles, the feeder is 26 feet wide at top, 10 feet at bottom, and from 4 to 5 feet deep. When filled it will overflow a considerable portion of the surrounding lands, unless an embankment is thrown upon the berm or west side, and the surplus waters conveyed through, below the canal, by means of a culvert into the river Ouse.

I was informed that the country here is sickly; but that after passing Broad Creek into the Tamarisk marsh it becomes healthy and free of fever. In this section the water used, is tinged with the bark and leaves of the Tamarisk, to which the workmen ascribe their healthful state.

From Broad Creek to the main curve, the point where it is supposed that the feeder will intersect the Ship canal, the excavation is 20 feet wide at the bottom, 36 feet at the surface, and upwards of 4 feet deep. This section is 14 miles and fifty chains in length and perfectly straight. It forms one of the most magnificent avenues in the world.

On this line at the village of Marshville, there are two miles of cutting upon the old route, of the width of a ship canal, which have been abandoned. It is said to terminate in an excellent mill seite, but I did not examine it. I will go over it some time during the summer, and see whether or not it can be employed in any way, so as to defray in some degree the heavy expense of its excavation. Marshville is but four miles distant from Lake Erie; it is the centre of the Company's 13,000 acres of land.

From main curve down to the aqueduct, where the waters of the canal pass over the Welland river, the distance is 3 miles 30 chains, and the feeder is constructed with 20 feet bottom, a slope of 2 to 1, and is from 5 to 6 feet deep. Wherever there was low cutting it is the full width of the ship canal; and the alledged object in making it deeper near the deep cut is thereby to draw a more plentiful supply out of the Grand River.

From the aqueduct to the village of Beverly, at the commencement of the deep cut, a distance of 3 miles, the same general dimensions are continued.

The plan of the Feeder is 4 feet water in the canal at the dam; thence to Marshville a gradual descent of 6 inches; thence to Helme's Creek, other 6 inches; thence to Carle's ravine 6 inches; and thence to the deep cut 6 inches; in all a descent of 2 feet, natural reservoirs being provided at each 6 inches of descent.

The carpenter work of the bridge over the feeder at or near the dam is well done, but the abutment wants repairs; from thence to Broad Creek, there are two waste wears and tow-path bridges over them, the carpenter work of which is sufficient; also at Broad Creek a flume, the carpenter work of which is not good; the gates are insufficient, and some puddling is required. The bridge and waste wear at Helme's are in good order.

THE AQUEDUCT ACROSS THE WELLAND.

This is an excellent piece of workmanship, and a monument of the superior skill and ability of Mr. Marshall Lewis, the builder and contractor.

THE WORKS AT OR NEAR CHIPPEWA.

The Swing Bridge across the Welland at Chippewa village is a substantial piece of workmanship, and admits the passage of ships or steam-boats of 40 feet beam. That part of the origiant bridge which has not been repaired by the company, is in a decayed state.

The towing path on the banks of the Welland is incomplete. as is that from thence to Fort Erie.

The canal or cut across the point at the junction of the Niagara and Welland rivers, has been completed, with the exception of some dredging at each end. This work is extremely well done, and adds to the safety and convenience of the navigation greatly. The depth of water in the cut is 8 feet.

It is proposed to build a steam-boat at Chippewa to navigate the rivers Welland and Niagara, and sail between Beverly at the deep cut and Fort Erie, making one trip each way daily.

THE LOCKS, WASTE WEARS, &C.

Locks no. 1, 2, 3, are 32 feet wide and 130 feet long. Above St. Catharine's the locks are 120 feet in length, by 22 feet wide in the clear.

In Lock no. 7, at the lower corner on the west side, the joints have started down stream a little, but not so as to injure the lock or the navigation.

In lock no 5, the timbers inside have sprung inwards about 12 inches; the width therefore is only 21 feet.

Locks 8, 9, 10, 11, 12, are in good condition. Some puddling will be required at no 12.

Lock no. 13, has sprung in the width at top, but not so as to injure it; at the lower corner, the joints have sprung open a little.

Lock no. 14, bilged out like no 13.

Lock no. 15 requires some puddling or filling in, and the gate post will have to be repaired. Some other repairs are wanted, but it will not prove an obstruction to the navigation.

Lock no. 16, bilged out like 13 and 14.

Lock no. 17, a good lock and in good order.

Locks no. 18, 19, 20, 22, 24—These are all in good condition; some puddling is required at no. 18.

Lock no. 21 has bilged out as much as 26 inches wider. There is a bridge across the canal here which is in good repair.

The lower corners of lock no. 23, are not well put together.

Lock no. 25 is in good condition. At this place is the commencement of Rock excavation Between locks 25 and 26, the rock is full of chinks, and the water leaks through at bottom to the serious inconvenience and damage of the farm adjoining, which is owned by Mr. Ker, a settler from Scotland.

No. 26 is a good lock of fine workmanship. The lower end of this lock, and of no. 25 are handsomely faced with stone, laid up in dry wall.

The carpenter work of lock no. 27, is not well done.

Lock no. 28, same as 26.

Lock no. 29, a good lock of fine workmanship.

Lock no. 30, the same. The waste wear apron is too narrow.

Lock no. 31, in good condition. A waste weir between it and no. 30, and a waste weir above. Both in good order. Between 31 and 32, a highway and bridge across.

No. 32 is a fine lock; the same may be said of 33 and 34. Close by 34 is Mr. Keefer's grist mill and a growing village of 15 or 20 dwelling houses.

No. 35 is a good lock, and there is a bridge over the canal in this place. Between and the road from De Cou's mill is a waste weir in good order. On the Beaver dam road, there is a bridge which wants raising on the pivot. Between Mallatt's and Upper's, are four culverts in excellent condition.

No. 36 is a complete lock, except the paddle gates, which the company are about to alter. Some puddling required. Waste weir good.

No. 37 is a good lock. From this upwards, about a hundred yards of excavation will be required of nearly a foot in depth. A short distance above the lock, there is a saw mill; and a flume is in progress for the purpose of draining the deep cut, when it may be necessary to do so.

The carpenter work on the whole line, from the Harbor to St. Catharine's, appears to be substantial and in good order, except 2 towpath bridges. The towing path bridge at lock no. 10, requires some repairs.

I have availed myself of the experience of a master carpenter in matters appertaining to his line of business and obtained the advice and assistance of professional and other persons in whom I could place confidence, in all such matters as seemed to me to require counsel and information.

A great deal of doubt has been thrown on the stability of the locks, and perhaps some of them may give way; but I have not had reason to apprehend such a casualty from any thing which came under my observation. I examined the locks one by one, very carefully, as required by the act, and consider them *upon the whole* as fine a specimen, both in design and workmanship, as any others which have come under my observation on this continent.

I ascertained by enquiring at the carpenter's that the timber employed had been cut down at a proper period of the year, and not when full of sap, and that it was afterwards seasoned. The lock gates however should have been made of sunk oak or timber that had been immersed some time in water, and afterwards thoroughly dried. Such timber is very difficult to work, but makes a superior job; and it is well known that canal lock gates are in Canada, exposed to great changes of climate, being from the duty they perform, neither wet nor dry.

PORT DALHOUSIE.

This harbour has an advantage over that at Burlington, in being less exposed to the storms on the lake; and the soil which is a fine tough clay, is far more favorable for the purposes of canal navigation.

The piers, dam, waste weirs, entrance-lock and other works are in good order, having withstood the freshets of the creek from within, and the storms of the lake from without, without suffering any material injury.

Inside the lake lock, above the waste weir, there are from 10 to 12, and in some places 15 feet of water in the channel for nearly two miles up the valley of the Twelve.

I ascertained the depth of water in this harbor at two different periods; the first was in the beginning of this month, and the last time on Monday last. The lake was calm on both occasions, and the depth of water about the same.

On the lower sill of the lock I found 13½ feet of water, and outside the lock between the piers the soundings were from 8½ feet to 10 feet 11 inches. Two machines were in operation deepning the channel.

Beyond the piers, in a line with the entrance, the depth of water ranged from 10 feet 9 inches, to 12 feet 6 inches, until upon the bar, where the soundings were from 9 to 10 feet. Farther out in the lake, about a hundred yards in the same direction, I found fourteen feet of water.

The bar is about a chain in width, and in the two intended channels the least depth upon it is 9 feet. It is intended to extend the main pier 60 feet further into the lake, and to place another pier across the bar in the same line from the lake excavating the channel 60 feet in width and eighteen inches deep across the bar.

The other ship channel, north of the main pier head, is to be excavated to the same depth, and a buoy placed on each side of the entrance for the guidance of the mariner. For his guidance also, two lights will be placed in a line with each other, and in a line with the main channel at a proper distance.

It is of consequence to the prosperity of the canal that this harbor should be speedily deepened and improved so as to insure the regular reception of steam-boats. A western merchant, after his property has arrived at Fort Erie, can depend upon its being forwarded to Montreal by a given day if sent over the portage, and by steam-boats from Queenston. To ensure confidence in the Welland Canal it is obvious that it should possess the same facilities for the regular transit of property by steam navigation, that are enjoyed on the Queenston route.

Lake Ontario is now understood to be between 15 and 24 inches higher than its level at certain seasons of the year, and its waters rise and fall not less than three feet, taking one season with another, in a period of five or six years.

I think it will be found necessary hereafter to widen the entrance lock so as to admit steam-boats of the size now navigating Lake Ontario, into the great dam; and if it should be determined to make this alteration, the lock ought to be placed at the first turn about 100 yards above its present scite, which would leave a large and convenient basin for steam-boats and other large craft; the space outside the lock, between the piers, being too much confined.

On the dyke of the great pond, a saw-mill, with a horizontal or "re-action" wheel has been erected for years, which I was informed, had done considerable business.

Already has the anticipated commerce of the canal begun to attract capital to Port Dalhousie. They are building houses and stores and erecting granaries; and one merchant has established a wholesale store with a heavy stock of British goods. A road from this place to Niagara is much wanted.

The towing path from Port Dalhousie for several miles up the creek, is an artificial mound of earth raised on the left bank of the natural channel. It follows the windings of the creek, and will have to be stoned up, to prevent it from washing away, as will many of the artificial embankments on the line. The Erie Canal had to be stoned up on each side for many miles, to prevent the soil from filling up the channel. But these improvements can be made in the winter seasons when experience shall prove them to be necessary, after the canal is completed.

A floating bridge is made through the towing path about 200 yards above the entrance-lock, to enable vessels, rafts, &c. to pass from the canal into the grand basin. Should it be considered expedient to widen the present entrance-lock, instead of removing it further up the canal, I would suggest the propriety of placing another floating bridge on the towing path, immediately above that lock.

WATER POWER.

The advantages possessed by this line of canal for impelling machinery are very great. At the Grand River dam, there is water enough *to spare* for impelling a number of mills. At whatever place on the lake the ship canal shall terminate, there will be a fall of probably *six* or *seven feet*, with a never failing supply of water for

mill purposes—a most important acquisition, should the navigation terminate in the Sugar Loaf settlement—for on the lake shore, in a distance of 40 miles above Fort Erie, there is but one mill seat, which, though an indifferent one, was obtained by laying upwards of 600 acres of fertile land under water, many years ago—presenting an unpleasing spectacle to the eye, and generating fever among the settlers.

At the ground plot of the village of Beverly, where the canal locks down into the Welland river, there is a descent of about 16 feet, with a large reservoir, into which the feeder canal will discharge its waters, and where manufactures requiring water power might be carried on to great advantage.

At the north end of the deep cut, after the commencement of the mountain descent, a waste weir turns the superfluous water *around* two locks, a fall of sixteen feet, after which it enters the canal again, and may be used for any manufacturing purpose whatever. Then at Thorold it is conveyed *around* four locks; then *around* thirteen locks until it re-enters the canal on Shaver's farm, below the mountain ridge; then *around* locks until it enters the canal at St. Catharines. By this contrivance, the mills and machinery that may be hereafter erected in the course of this descent, can be continued in operation, even at such times as the locks or sections are undergoing repairs.

Mr. Keefer of Thorold has built on the line of canal, an excellent grist mill of the most durable materials; the walls are of stone, and the machinery worked by cast iron wheels. It is calculated for eight run of stones, and has four run of French Burrs completed. This mill is one of the finest establishments of the kind in the Colonies.

Six mills have been erected along the line of canal—four more are now in progress; and applications to the company for water power to turn other fifteen grist mills, saw mills, carding and fulling mills are now under consideration. These hydraulic privileges will prove a never failing source of revenue.

UNFINISHED WORK.

A considerable outlay will yet be required to complete the Welland canal. The line of cutting to its termination in Lake Erie, with the expense of improving a harbor there—the alterations and improvements at Port Dalhousie—the lock and other additions at the Grand River dam—the widening the feeder to boat canal size from Dunnville to Broad Creek—the stoning up of the banks where it may be found needful, and the erection of a weighing lock are some of the principal items. Unforseen accidents may likewise occur, and swell the list of expenses. But I have stated the grounds of my apprehension wherever I considered a possibility of danger or risque to exist.

TERMINATION OF SHIP CANAL ON LAKE ERIE.

The "future usefulness" of the canal, will partpartly depend upon the skill and judgment that may be displayed in the selection of a place at which to carry it into Lake Erie—and as the Legislature have decided to defer that part of the work until the several routes shall have been examined and reported upon, it is my intention in the course of the present summer carefully to examine the coast and being assisted by professional men in whose skill and integrity I can place full reliance, to collect all the information necessary for enabling the Legislature to decide upon the advantages and disadvantages of the several proposed harbours and lines of canal, and to report the same to Your Excellency.

Early in the present month, I traversed part of the country between Marshville and Lake Erie, and found it favorable for canal purposes—so far as an examination of the surface could enable me to form an opinion. I visited the coast from Gravelly Bay up to Kinnaird's Bay, which latter is situated in that beautiful tract of country known as the Sugar Loaf settlement, four miles from Marshville.

Graybiel's bay is 24 miles above Fort Erie, 20 from Chippewa village, between 6 and 7 from the aqueduct over the River Welland, and about 6 from the nearest point on that river, due north. Abundance of gray freestone may be had within a mile, and hard wood is abundant. The bay is sheltered on the west by Point Industry, and according to information received from Mr. Graybiel, its bottom is hard clay, covered with a layer of sand and gravel, from one to four feet in depth.

Gravelly bay, otherwise called Steel's bay, is about 4 miles below Mr. Graybiel's house, and 5¾ miles distant from the line of canal or feeder. It is protected both on the east and west by ledges of rock which extend a considerable distance out into the lake.

If, on due examination, it should be found that Graybiel's bay possesses as many natural advantages for a harbor as Gravelly bay, it is, (taking the two only into consideration,) otherwise entitled to a decided preference—the country round the latter being low and unhealthy, while the lands in the neighborhood of the former are pleasant and salubrious, affording most desirable situations on which hereafter to build a village or city.

The settlers informed me that from Sugar Loaf up to the Grand River the ice in the Lake and bays breaks up much about the same time, and that this year it began to give way on the 1st day of March, and finally cleared out from Graybiel's bay on the 22d of that month. From such information as I have been able to obtain, I learn that the ice left Buffalo harbor this year, on the 19th day of April, a month after the lake was open from Gravelly bay and upwards on the British side. Last year the Grand River and Lake near it were open and clear of ice on the 11th of April, and it is stated in a supplementary report of the Board of Directors of the Welland Canal, that no vessel could have entered the port of Buffalo from the upper parts of Lake Erie, that season, earlier than the 14th of May.

By means of the boat navigation termed "the feeder" the main canal will be placed in communication with the Grand River; which is now navigable for twelve miles above the Dam; and it appears by the evidence afforded to a select Committee of the House of Assembly during the Session of 1828, that at a moderate expense it can be opened for boat navigation many miles higher up, passing through a rich and populous section of country abounding in timber of all descriptions, and which now exports annually a large value in flour, ashes, pork, whisky, lumber, gypsum, and other produce.

By the feeder, the main canal will be placed in communication with the waters of the Grand River below Dunnville, as soon as a lock shall have been erected in the Dam—and with the Niagara river above the Falls, and the populous and wealthy settlements on its banks, it is connected by the River Welland, which is also navigable for at least 18 miles beyond the Deep Cut, into the interior of the Niagara District.

The Canal intersects nearly 30 miles of country, fertile and well settled, and is accessible from Lakes Erie and Ontario with Schooners—Being chiefly intended for Ship or Schooner navigation, the shortest possible route to its grand western termination that offers a safe and convenient harbor ought to be adopted.

The attention of the Legislature of Upper Canada appears to have been early attracted to the important subject of uniting *Lake Erie* with the ocean—In 1821 a Statute was passed authorising the appointment of a commission "for the purpose of exploring, surveying and leveling the most practicable routes for opening a communication by Canals and Locks between Lake Erie and the Eastern Boundary of this Province."—That Commission reported early in 1823 in favor of a ship navigation throughout, and considered it of the highest importance that the assistance of Lower Canada should be obtained. Of this line, the Welland Canal is the only part that has been attempted to be opened; and it is gratifying to perceive, that the undertaking approaches towards a successful termination. To Mr. William Hamilton Merritt, the Superintendent, great praise is unquestionably due for his undefatigable exertions to accomplish the work—though often placed in very difficult situations. I heartily concur with Capt. Basil Hall, in the opinion he has expressed, "that to" Mr. Merritt's "perseverence and knowledge of the subject, as well as his great personal exertions this useful work stands mainly indebted for its success."

A COMMERCIAL EMPORIUM.

It is a circumstance greatly to be regretted that Upper Canada remains destitute of a Commercial Emporium under its control, and to which its rich and growing commerce could be directed. The trade of this colony being attracted to Montreal and Quebec, diffuses its "general warmth" over the whole of the sister province—adds to its wealth, its productive industry, its power, and its population—and yields a rich revenue, over which we have not that official control to which it appears to me that we are of right entitled. The means of paying the interest and ultimately, the principal of a loan, which would be sufficient to continue the navigation of the Welland Canal, unbroken to the ocean; is in the hands of the sister colony, and chiefly arises out of the commerce of the ports of Montreal and Quebec. A further claim on the Legislature of Lower Canada for assistance to defray the cost of the Welland navigation, seems to me, under those circumstances, fair and reasonable.

Provided the produce of the Upper Lakes within the territories of the United States shall be allowed to pass through the Canal—the tolls will be greatly augmented; a considerable traffic created; and the countries on its borders enriched. It is by far the best and cheapest route, even to the New York Market and will of course receive a preference.

The expenditure upon the Canal has given a large and wholesome circulation to money, and enriched many. Villages are starting into existence upon its borders, and new employment is created for individual industry. New capital is attracted and put in operation; settlers are induced to purchase lots and commence improvements, and the additional value of their skill and labour will add to the wealth of the Province and the strength of the nation.

In proportion as this Canal will enable the Agriculturist in countries beyond it to bring produce to market, and carry merchandize back into the interior at a cheaper rate of freight and by a speedier mode of conveyance than he formerly possessed, in like proportion will it augment the value of property in these countries, and induce capitalists, enterprising men, to form settlements, where, without such improvements in the means of transit they would not have been thought of—The migrations of the productive class from Europe to the United States, and especially to the State of New York, of late years, have been considerably augmented by reason of the Canals and Rail-roads carried on in different parts of the union.

To the commerce long established, carried on with the North West Territories, great additional facilities will be afforded in the means of transporting goods and stores upwards and Furs downwards—a region will be opened to the enquiries of the active and enterprising which is as yet but little known to Europeans.

"Upper Canada," according to the statement contained in the report of the joint Committee of the Legislature of this colony, of 1825, on internal navigation, "contains an area of about 50,000 square miles," regarding only those parts "of it within the great waters which appear to "be capable of cultivation"—"the soil of which "is, with very little exception, most favorable "to agriculture; and the climate being equal-"ly propitious, there is no doubt, that when "sufficiently peopled, its productions and con-"sequently its trade, must be immense". The character and happiness of the people is intimately concerned in the extension of agriculture and the increased productiveness of the soil; and hereafter the wheat raised on the banks of Lakes Huron and Ontario will enter into successful competition, in the markets of Great Britain, with that of New York and Baltimore, of Dantzic and Odessa; and a commerce be established through the Welland Canal, alike important to the Merchant and beneficial to the Agriculturist.

With the pecuniary affairs of the Canal; the system of letting out contracts; the mode of measuring the excavations; and of conducting its business generally, I have but a very slight acquaintance—but shall endeavour to inform myself on these points before transmitting to Your Excellency my concluding report upon its condition.

The Tolls during the present season will not be a fair criterion by which to calculate the commerce of future years. Large quantities of produce have already passed downwards by the portage at Queenston, the owners being generally anxious to reach the market as early in the season as possible. In the Ohio, one house alone was prepared to have sent through the Canal to Oswego, four or five thousand barrels of pork, had the navigation been open on the 15th instant.

Economy in the expenditures of money: moderate rates of toll, and a prudent careful management of the affairs of the canal, may enable the Stockholders, before long to divide a fair per centage annually, after paying interest on loans, and the necessary charges for officers and servants.

The future usefulness of the Welland Canal will greatly depend upon the removal of the obstructions which now impede the navigation of the St. Lawrence below Prescott. In time of war, the Rideau Canal may be eminently serviceable, and the expenditure laid out in its construction is enriching the colony; but it is to the St. Lawrence we must look for the cheapest and best modes of constructing to the Montreal and Quebec Markets, the produce of the vast countries bordering upon the great lakes, and of receiving the most bulky and heavy of our imported merchandize. It is the shortest and most direct route to the Atlantic, and the natural channel of the countries on its banks. When a schooner can take in a load of wheat on Lakes Erie or Huron, and proceed to Montreal without transhipping her cargo, until she is placed at the side of the vessel that is to carry it to Europe, an immence benefit will have been confined on these colonies, and a stream of commerce directed, at a comparatively trivial expense, to the greatest Emporium of British manufactures and merchandize in British North America.

The expense of improving the St. Lawrence *is as nothing* when compared with the advantages that its uninterrupted navigation would confer—Capt. Basil Hall, in his observations on the canals of Canada, seems to have been fully aware of the value of the Welland, and how much its future usefulness would be increased by the improvement of the St. Lawrence.

"The most obvious and natural, and it will "soon be the most advantageous communication "with the sea," observes Capt Hall, "is that "by the River Saint Lawrence—one grand step "towards the accomplishment of this object, "which is of the highest importance, not only to "the Canadas, but to the parent state, has al-"ready been made by the construction of the "Welland Canal, as it links together all the "Upper Lakes, by means of a Ship canal, with "Lake Ontario. Were the navigation of the

"River St. Lawrence unimpeded during its "course from Lake Ontario to the sea, there "would be nothing farther to desire on that "point, and Upper Canada would then virtually "be, what it ought to be, but what it certainly is "not at present, in any sense of the word a "maritime Province of Great Britain. The ad- "vantages to the Colony, and also to the mother "country, which would flow from the increased "facility of commercial and other intercourse "between them, which these channels would "open, are more considerable than many people "are aware of. It may be worth while, there- "fore, to consider the means which it is propos- "ed to adopt, in order to facilitate the direct in- "tercourse between Great Britain and Upper "Canada."

The opening of a navigation which is now about to carry the ships of Lake Ontario to the rapids of St. Mary, and eventually to the remotest shores of Lake Superior, will form an important era in the history of Canada—"fututurity will disclose the benefits it will produce, and expereince will pronounce an unerring decision". A vessel arriving at Buffalo or Black Rock with goods or produce for New York, transfers her cargo into the canal boats, from whence, at Albany, they are transhipped into schooners or tow-boats, and pay treble freight. The Welland Canal will carry produce from the most remote inlet on Lake Huron to the Port of Prescott; and as soon as the St. Lawrence shall have been improved to Quebec or Halifax in the same bottom in which it was at first shipped.—Men of business will readily perceive what an important advantage will thus be gained in the saving of double or treble freight.

In concluding this report, I beg leave very respectfully to congratulate your Excellency upon the prosperous and forward condition of the Canal generally, I feel that it will, daily, and deservedly, become more and more an object of public confidence and of public interest, and should this plain statement of facts prove successful, in removing, in part, the doubts of some and the fears of others with regard to the stability of the works, I would be pleased and gratified.

When the Canal is opened and has practically manifested its usefulness, for strengthening the ties of social connexion, for promoting and encouraging the progress of the arts of civilized life, for advancing the great interests of productive industry; and for establishing the blessings of easy intercommunication within the province, then will it be considered that the grand system of internal improvements has had a fair and successful trial amongst us, and that the policy of continuing the line from Erie to the ocean has obtained in its favor, the test of experience.

Should the junction of the great lakes with the Atlantic, by the line of ship canals happily begun, be accomplished during Your Excellency's administration of this government, Your Excellency, by promoting and encouraging the great work, would deserve the lasting gratitude of the colonists and the approbation of the British nation.

ROBERT RANDAL.

Chippawa, May 31st, 1830.

FINIS.